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VOL. 16 No. 14

April 8, 1966

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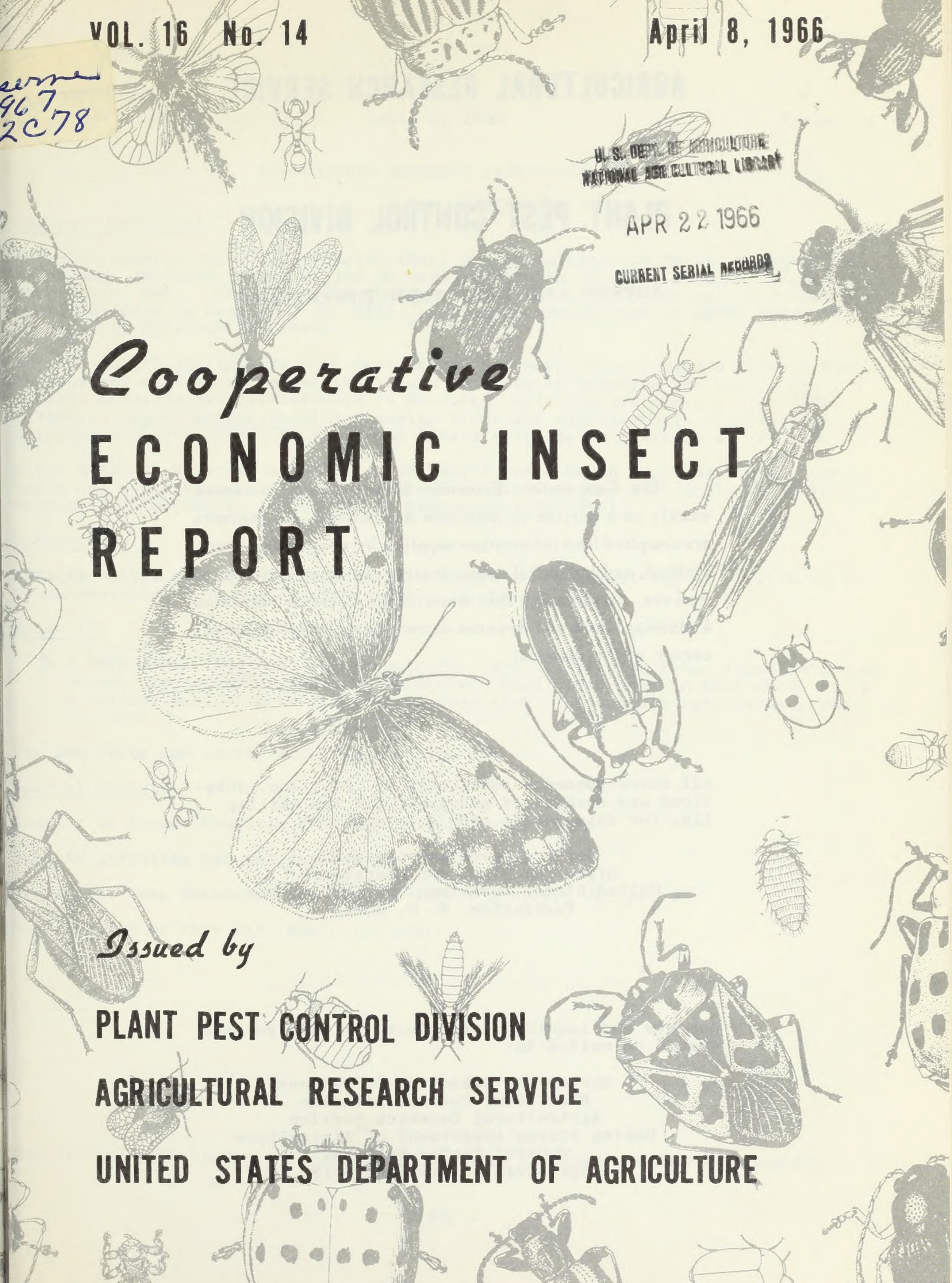

Cooperative
ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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Volume 16 April 8, 1966 Number 14

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

GREENBUG locally heavy and damaging small grains in areas of Texas, Oklahoma and Arkansas. ARMYWORM larvae active on oats in Florida (p.273), also see light trap reports (p. 285). EUROPEAN CORN BORER spring survival 82.5 percent in Illinois; pupation noted in Delaware. (p. 273). Economic infestations of BROWN WHEAT MITE in wheat in Oklahoma and Texas.

ALFALFA WEEVIL adults active in West and in Missouri; larval counts high in Mississippi and increasing in Maryland; eggs hatching in Maryland and Ohio. New alfalfa seedings heavily infested in Kentucky, will require control. (p. 274). A WEEVIL (*Hypera brunneipennis*) damaging first and second-growth alfalfa in Arizona; definite threat to first and second cuttings in California. (p. 275).

First seasonal activity of CEREAL LEAF BEETLE noted March 10 in Michigan. Large-scale egg deposition likely to be delayed until early May. (p. 281). HORN FLY appearing in Oklahoma, increasing in Mississippi (p. 280).

Predictions

ALFALFA WEEVIL expected to cause severe damage to first cutting of alfalfa in extreme southeastern counties of Missouri. (p. 274).

Detection

▶ A SEED MIDGE (*Stenodiplosis bromicola*), new to North America, found infesting smooth bromegrass in southern Nebraska. Pest widespread in USSR where it is a serious pest of bromegrass seed production. Literature references given. (p. 283).

For new State and county records, see page 284.

Special Reports

Summary of Insect Conditions in the United States - 1965

Insects Affecting Man and Animals. (p. 287).

Blacklight Trap Standards for General Insect Surveys. (p. 297).

Distribution of Face Fly (Map). (p. 290).

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WEATHER BUREAU'S 30-DAY OUTLOOK

April 1966

The Weather Bureau's 30-day outlook for April calls for temperatures to average below seasonal normals in the eastern half of the Nation except for near to above normal in South Atlantic Coast States. Over the western half of the Nation temperatures are expected to average above normal in the Intermountain Region and the Pacific Coast as well as western portions of the Northern Plains, but below normal in the Southern Plains. Precipitation is predicted to be subnormal from the Northern and Central Plains westward to the Pacific Coast and also along southern portions of the Pacific Coast. Above normal rainfall totals are called for over the Gulf and South Atlantic Coast Regions while near normal amounts are indicated in unspecified areas.

Weather continued on page 285.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

GREENBUG (Schizaphis graminum) - ARKANSAS - Local, heavy population seriously injured oats in north Logan County. (Barnes). Surveys negative on university farm near Fayetteville, Washington County. No aphid species found in appreciable numbers in northwest. (Boyer). OKLAHOMA - Ranged 17-55 per linear foot in wheat in Greer, Jackson, Tillman and Comanche Counties. Heavy in Cotton County and local areas in northwest, north central and central areas. Highest counts reached 3,000 per linear foot in eastern Major County. Damage very severe in local areas. Ranged 50-350 per linear foot in many fields in Garfield, Noble, Payne and Logan Counties. Moderate in Woodward County, light in Garvin County. Control operations widespread in many areas but hampered by high winds and cold weather. (Okla. Coop. Sur.). TEXAS - Ranged light to moderate throughout panhandle on wheat. Heavy in some fields; averaged 1,000 per foot around Tulia, Swisher County; ranged 1,500-2,000 at Hillsboro, Hill County, and 1,000-2,000 in Smith County. Damaging numbers reported in Bell County. (Parker).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Light to moderate in small grains throughout Yuma, Maricopa, Pinal and Graham Counties. (Ariz. Coop. Sur.).

ARMYWORM (Pseudaletia unipuncta) - FLORIDA - May be increasing in oats at Gainesville, Alachua County; 12 larvae taken in 100 sweeps March 30. (Mead). ARKANSAS - Moths observed around city lights on nights when temperature 45°F. or above. (Boyer).

SPOTTED ALFALFA APHID (Therioaphis maculata) - UTAH - Rare in alfalfa in Santa Clara, Washington County. (Knowlton).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Overwintering larvae pupating March 29 in Sussex County. (Burbutis). ILLINOIS - Average percent winter survival survey results as follows: 90.7 in east district and 80.0 in northwest district. Borer populations in northeast and central districts were so low that survival could not be established. State average for borer survival this spring is 82.5 percent. (White). MISSOURI - Spring survey in New Madrid County March 18-19 showed average of 1,762 borers per acre. Of 23 fields checked, ranged 200-15,667 per acre in 15 fields; none found in 8. (Keaster).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - MISSOURI - Winter survival negative in 3 of 4 New Madrid County fields March 18; survival 26.1 percent in 1 field with sandy loam soil. Fields with no survival disked during fall. (Keaster).

SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae)- FLORIDA - Increase evident; averaged 125 per 100 sweeps of oats at Gainesville, Alachua County. (Mead). MISSOURI - Remains light on small grains in southeast; 1-5 per foot of row. (Houser). MARYLAND - Averaged 25 per 100 sweeps on young barley at Cambridge, Dorchester County. (U. Md., Ent. Dept.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - TEXAS - Decreasing throughout Panhandle due to weather, plant stage, and high populations of Lysiphlebus testaceipes (a braconid wasp). (Parker).

AN APHID (Rhopalosiphum padi) - OKLAHOMA - Ranged up to 300 per linear foot in scattered wheat fields in Payne, Noble, Garfield, Kiowa, Jackson, Major and Logan Counties. Normally averages 30 or less per linear foot. (Okla. Coop. Sur.).

GRANULATE CUTWORM (Feltia subterranea) - ARIZONA - Light and scattered in barley in Casa Grande and Eloy areas, Pinal County. (Ariz. Coop. Sur.).

BROWN STINK BUG (Euschistus servus) - FLORIDA - Five adults taken per 100 sweeps in oats at Gainesville, Alachua County. Some eggs noted. (Mead).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Up to 2,000 per linear foot in wheat on lighter soils in Major County; moderate to heavy (up to 300 per linear foot) in many areas of Tillman, Cotton, Comanche, Noble, Grant, Payne and Logan Counties. Some fields sprayed. (Okla. Coop. Sur.). TEXAS - Built up to economically significant infestations on wheat; some damage in Ochiltree, Lipscomb, Roberts, Hemphill, Gray and Wheeler Counties. (Parker).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Present in many wheat fields in northwest, north central and central areas; damage slight. (Okla. Coop. Sur.).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - GEORGIA - Five sweeps of alfalfa yielded 277 larvae in Houston County. (Tippins). MISSISSIPPI - Continues high. Larvae averaged 180 per square foot in Pontotoc County alfalfa. All larval stages observed. First-generation adults apparently emerging over State. (Dinkins et al.). ARKANSAS - Two larvae collected April 1 in 175 sweeps of 15-inch net on university farm near Fayetteville, Washington County. Det. by J. R. Phillips. Also found in Clay and Chicot Counties March 30. These are new county records. The Washington County record means H. postica spread completely across State in 3 years. Larvae averaged 10 per square foot in Marion County and 21 per square foot in Mississippi County. Surveys negative in Boone County. (Boyer et al.). MISSOURI - Cold weather and frost slowed activity in southeast. Damaged terminals ranged 5-45 percent but actual damage remains light. Overwintering adults active; 4-200 per 100 sweeps in 4-8 inch high alfalfa. Severe damage anticipated on first cutting in many fields in extreme southeastern counties. (Houser, Jones). KENTUCKY - Development and damage ceased due to low temperatures. Many small larvae in alfalfa buds; about 5-10 percent killed by low temperatures. New eggs found in hollow stems of new alfalfa growth; will hatch in about 7 days. Egg laying will continue through first cutting. Fewer weevils and less damage found in fields grazed or cut during late fall or winter months. Many new seedings heavily infested; will need spraying soon. (Miller). OHIO - Eggs hatching in Meigs and Lawrence Counties. (Niemczyk, Flessel). VIRGINIA - Present in all alfalfa checked; 12-120 larvae per 100 sweeps in Culpeper, Orange, Madison, Louisa, Fluvanna, Albemarle and Nelson Counties. Most in first and second instars. Alfalfa 4-7 inches high. (Isakson). MARYLAND - Adults active; laying eggs in alfalfa stems in most sections. First and second-stage larvae light but increasing in Dorchester and Talbot Counties. (U. Md., Ent. Dept.). DELAWARE - Young larvae common on alfalfa in Kent County; 2 per stalk in one field. (Burbutis). NEW JERSEY - Small larva noted in Salem County alfalfa. (Ins.-Dis. Newsltr.). MASSACHUSETTS - No evidence of overwintering eggs or spring oviposition April 1 in Hampden County. (Shaw). COLORADO - Adults active on alfalfa in Weld County. (Jenkins, Johnsen). UTAH - Adults active on warm days at Logan, Cache County. (Knowlton). NEVADA - Adults active and mating in Churchill, Douglas, Lyon, Pershing and Washoe Counties; no eggs found. (Coop. Rpt.). IDAHO - Adults first observed at Parma, Canyon County, March 17. (Waters). Considerable adult activity in several Bonneville County fields. Averaged 5-6 per square foot in fields in which plants just breaking dormancy, March 29. (Paulson).

CLOVER LEAF WEEVIL (Hypera punctata) - MARYLAND - Larvae causing conspicuous foliage injury on red clover in Queen Annes and Talbot Counties. (U. Md., Ent. Dept.). MISSOURI - Young larvae ranged 0-5 per square foot in alfalfa in southeast and east central districts. Damage very light on 0-2 percent of plants. (Houser). OKLAHOMA - Larvae light in alfalfa in Beckham and Kiowa Counties. (Okla. Coop. Sur.).

CLOVER HEAD WEEVIL (*Hypera meles*) - ALABAMA - Larvae heavily damaging 200-acre field of crimson clover in Montgomery County on farm where similar condition existed in 1964. Controls applied. (Williamson).

LESSER CLOVER LEAF WEEVIL (*Hypera nigrirostris*) - UTAH - Larvae severely damaged red clover at Altonah, Duchesne County, June 18, 1965; unusual record for State. Det. by D. M. Anderson. This is new county record. (Knowlton).

WEEVILS (*Hypera* spp.) - CALIFORNIA - Survey in Strathmore-Porterville area, Tulare County, showed 24-60 *H. brunneipennis* adults per 100 sweeps in alfalfa. Larvae common, but peak not reached. Heavy adult populations mean egg laying continuing. This species definite economic threat to first and second alfalfa cuttings. *Bathyplectes curculionis* (an ichneumon wasp) present in low numbers. This is valley area where *H. postica* (alfalfa weevil) and *H. brunneipennis* meet. (van den Bosch, Lagace). ARIZONA - *Hypera brunneipennis* heavy and damaging second-growth alfalfa in Yuma County areas. Continued increases in Buckeye, Goodyear, Tolleson, Peoria, and Baseline Road areas heavily damaging first-growth alfalfa in Maricopa County. (Ariz. Coop. Sur.).

CLOVER ROOT CURCULIO (*Sitona hispidula*) - MARYLAND - First adults of season swept from alfalfa at Cambridge, Dorchester County, March 29. (U. Md., Ent. Dept.).

SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata howardi*) - OKLAHOMA - Averaged 1.5 per 10 sweeps in alfalfa in Greer County. First report of year. (Okla. Coop. Sur.).

ALFALFA CATERPILLAR (*Colias eurytheme*) - NEW MEXICO - Occasional larva noted in alfalfa in Dona Ana and Chaves Counties. (N. M. Coop. Rpt.).

CUTWORMS - OHIO - *Amathes c-nigrum* larvae active on alfalfa February 11 at Carpenter; nearly full grown March 21. (Rings). ARIZONA - *Spodoptera exigua* increasing in alfalfa in Gila and Yuma Valleys, Yuma County; 40-130 per 100 sweeps. *Feltia subterranea* light and scattered in alfalfa in Casa Grande and Eloy areas, Pinal County. (Ariz. Coop. Sur.).

PEA APHID (*Acyrthosiphon pisum*) - MARYLAND - Ranged 1-7 per sweep on alfalfa in Dorchester and Talbot Counties. Light on red clover in Queen Annes and Talbot Counties. (U. Md., Ent. Dept.). VIRGINIA - Light in all alfalfa checked in Culpeper, Orange, Madison, Louisa, Fluvanna, Albemarle and Nelson Counties; 20-400 per 100 sweept (average 120). (Isakson). INDIANA - Apterous adults ranged 4-10 per 100 sweeps on alfalfa in Johnson County. (Huber). MISSOURI - Light (200 per 100 sweeps) in the southeast; building up. (Houser). OKLAHOMA - Ranged 150-250 per 10 sweeps in alfalfa checked in Tillman and Greer Counties; light to moderate (up to 50 per 100 sweeps) in Kiowa, Comanche, Beckham, Garvin, Kingfisher and Payne Counties. (Okla. Coop. Sur.). ARKANSAS - Very light (100-300 per 100 sweeps) in Boone and Washington Counties. (Roberts, Boyer). MISSISSIPPI - Total of 38 adults and nymphs taken in 50 sweeps of alfalfa in Oktibbeha County. (Dinkins et al.). NEW MEXICO - Very light to light in alfalfa checked in Bernalillo, Sandoval and Chaves Counties. (Kloepfer, Heninger, Mathews). UTAH - Numerous on alfalfa in St. George-Santa Clara area, Washington County. (Knowlton). WASHINGTON - Adults and third-instar overwintering forms (most parasitized) averaged 5 per sweep in Pasco, Benton County. Ranged 1-2 per sweep in Walla Walla, Walla Walla County; present in 3 of 15 fields checked. (Halfhill).

TARNISHED PLANT BUG (*Lygus lineolaris*) - MARYLAND - First adults of season swept from red clover at Easton, Talbot County, March 29. (U. Md., Ent. Dept.). INDIANA - Adults averaged 20 per 100 sweeps in central and south central area alfalfa. (Huber). ARKANSAS - Ranged 5-10 per 100 sweeps in Washington County alfalfa. (Ark. Ins. Sur.).

LYGUS BUGS (*Lygus* spp.) - NEW MEXICO - Averaged 0-12 per 100 sweeps in Artesia area, Eddy County; 0-18 in Roswell area, Chaves County. (Mathews). COLORADO - Active on alfalfa in Weld County. (Jenkins, Johnsen). NEVADA - Adults common in alfalfa in Churchill, Douglas, Lyon, Pershing and Washoe Counties; very numerous on range plants. (Coop. Rpt.).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - NEW MEXICO - Populations higher in alfalfa than in previous years in numerous southern Dona Ana County fields; 12-56 adults per 100 sweeps. (Nielsen, Elson).

THRIPS - NEW MEXICO - Very abundant in much alfalfa in southern Dona Ana County; light in Chaves County. (N. M. Coop. Rpt.).

PEANUTS

WHITE GRUBS - GEORGIA - Heavy in land being prepared for peanuts in Randolph County. (Peters).

TOBACCO

VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) - GEORGIA - Larvae moderate in plant beds in southern area. (French et al.).

GREEN PEACH APHID (*Myzus persicae*) - FLORIDA - Infesting 1 percent of 40 acres of tobacco at farm in Seville, Volusia County. (Pott, Roberts, Mar. 23).

MISCELLANEOUS FIELD CROPS

GREEN PEACH APHID (*Myzus persicae*) - ARIZONA - Increasing slowly in safflower throughout Yuma and Maricopa Counties. Winged forms becomming predominant in fields. (Ariz. Coop. Sur.).

WESTERN FLOWER THRIPS (*Frankliniella occidentalis*) - ARIZONA - Moderate numbers causing light damage to seedling safflower in southern and eastern Maricopa County. (Ariz. Coop. Sur.).

POTATOES, TOMATOES, PEPPERS

GREEN PEACH APHID (*Myzus persicae*) - FLORIDA - Light in 15-acre commercial planting of pepper in Delray Beach, Palm Beach County. (Genung, Mar. 27).

POTATO PSYLLID (*Paratrioza cockerelli*) - ARIZONA - First-instar nymphs increasing on potatoes throughout Maricopa County. Egg counts continue high. (Ariz. Coop. Sur.).

COLE CROPS

DIAMONDBACK MOTH (*Plutella maculipennis*) - FLORIDA - Moderate on acre of experimental cabbage at Belle Glade, Palm Beach County. Very few noted in commercial plantings. (Genung, Mar. 24).

LYGUS BUGS (*Lygus* spp.) - UTAH - Numerous on *Sophia* spp. and other mustards in St. George-Santa Clara area, Washington County; 80 percent *L. elisus*. (Knowlton).

DECIDUOUS FRUITS AND NUTS

EASTERN TENT CATERPILLAR (*Malacosoma americanum*) - NORTH CAROLINA - Larvae appearing on wild cherry tree in Wake County March 25, leaves just beginning to bud at time of hatching. (Greene). TENNESSEE - Eggs hatching across State. (Mullett). GEORGIA - Infesting wild cherry, apple and crab apple trees over State. (Coleman).

ARKANSAS - Egg hatching began March 18 in south section. (Warren). OKLAHOMA - Light on wild plum and other trees in northwest, north central and central areas. (Okla. Coop. Sur.).

RED-BANDED LEAF ROLLER (*Argyrotaenia velutinana*) - INDIANA - Adults active in Vincennes area, Knox County; no egg masses observed. (Cleveland, Dolphin).

PECAN LEAF CASEBEARER (*Acrobasis juglandis*) - GEORGIA - Larvae active, buds opening at Albany. (Osburn).

FRUITWORMS - OHIO - *Eupsilia* sp. and *Lithophane* sp. moths active in Cincinnati area in March; active at Wooster, March 1. Many eggs deposited March 23. *Orthosia hibisci* moths emerged March 14; still emerging April 1. (Rings).

PLUM CURCULIO (*Conotrachelus nenuphar*) - GEORGIA - First adult jarred from peach tree near full bloom in Fort Valley March 21. (Jacklin).

APPLE APHID (*Aphis pomi*) - DELAWARE - Noted on apple buds in Kent and Sussex Counties. (MacCreary). INDIANA - Egg hatch nearly complete in Vincennes area, Knox County; aphids feeding on apple buds during warm weather. (Cleveland, Dolphin).

AN APHID (*Anuraphis helichrysi*) - UTAH - Numerous on plums in St. George-Santa Clara area, Washington County. (Knowlton).

SAN JOSE SCALE (*Aspidiotus perniciosus*) - TEXAS - Locally damaging on peaches near Gonzales, Gonzales County. (Stockton).

WOOLLY APPLE APHID (*Eriosoma lanigerum*) - UTAH - Numerous on apples in St. George-Santa Clara area, Washington County. (Knowlton). ARIZONA - Light on apple trees in Graham County. (Ariz. Coop. Sur.).

EUROPEAN RED MITE (*Panonychus ulmi*) - MARYLAND - Eggs moderate on apple tips at Fairland, Montgomery County. (U. Md., Ent. Dept.).

A SPIDER MITE (*Bryobia* sp.) - CALIFORNIA - Eggs and immatures heavy on peach trees in Banning, Riverside County. (Cal. Coop. Rpt.).

CITRUS

CALIFORNIA RED SCALE (*Aonidiella aurantii*) - ARIZONA - Two additional infestations found in backyard plantings in city of Yuma. Intensive surveys continue in Yuma County to delimit infested areas. (Ariz. Coop. Sur.).

GRAPE FLEA BEETLE (*Altica chalybea*) - ARIZONA - Rapid increase in adult activity required controls in some areas of western and central Maricopa County. (Ariz. Coop. Sur.).

CITRUS THRIPS (*Scirtothrips citri*) - ARIZONA - Increasing rapidly on citrus in Yuma and Maricopa Counties. Control necessary. (Ariz. Coop. Sur.).

CITRUS RED MITE (*Panonychus citri*) - FLORIDA - Moderate on leaves of 375 of 500 sweet orange (*Citrus sinensis*) plants in nursery at Wimauma, Hillsborough County. (Simmons, Mar. 22).

GENERAL VEGETABLES

DESERT CORN FLEA BEETLE (*Chaetocnema ectypa*) - ARIZONA - Heavy numbers damaging very young lettuce in *Salt River Valley* area, Maricopa County. (Ariz. Coop. Sur.).

CABBAGE LOOPER (*Trichoplusia ni*) - ARIZONA - Continues light to moderate in Pinal and Maricopa Counties. Controls necessary in some fields. (Ariz. Coop. Sur.).

CUTWORMS - FLORIDA - Heavy under lettuce plants in 80-acre commercial planting at Belle Glade, Palm Beach County. *Agrotis ipsilon* and *Feltia subterranea* present in ratio of 4 to 1 in random sample. Most *A. ipsilon* late stages; *F. subterranea* younger stages. (Genung). ARIZONA - *Spodoptera exigua* light on lettuce from Peoria to Goodyear, Maricopa County. (Ariz. Coop. Sur.).

VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) - CALIFORNIA - Larvae infesting spinach plantings in few locations in Fresno, Fresno County. (Cal. Coop. Rpt.).

APHIDS - CALIFORNIA - *Capitophorus elaeagni* and *Myzus persicae* heavy on artichoke garden in Pescadero, San Mateo County. (Cal. Coop. Rpt.). WASHINGTON - Several apterous stages of *Myzus persicae* on common yarrow. First instance of summer forms collected at Othello, Adams County February 23. (Powell).

THRIPS - NEW MEXICO - Probably *Frankliniella occidentalis* apparently continues buildup on most onions checked in southern Dona Ana County. (Elson, Nielsen).

AN ACARID MITE (*Tyrophagus dimidiatus*) - CALIFORNIA - Medium on spinach plantings in Sanger, Fresno County. (Cal. Coop. Rpt.).

ORNAMENTALS

CHRYSANTHEMUM APHID (*Macrosiphoniella sanborni*) - ARIZONA - Increasing on ornamentals throughout most of Maricopa County. (Ariz. Coop. Sur.).

DOGWOOD BORER (*Thamnosphecia scitula*) - MARYLAND - Severely injured dogwood at Laurel, Prince Georges County. (U. Md., Ent. Dept.).

A BLASTOBASID MOTH (*Holcocera iceryaeella*) - CALIFORNIA - Larvae medium on leaves of spruce tree nursery stock in Mountain View, Santa Clara County and infesting seed head on dracaena palm in Santa Maria, Santa Barbara County. (Cal. Coop. Rpt.).

A CHRYSAUGID MOTH (*Galasa nigrinoides*) - VIRGINIA - Larvae and heavy webbing on boxwood at Halifax, Halifax County. (Isakson, Reynolds).

ELM LEAF BEETLE (*Pyrrhalta luteola*) - OKLAHOMA - Adults emerged from winter quarters in Major County. (Okla. Coop. Sur.). NEW MEXICO - Adults emerging from sheltered areas; becoming nuisance. (Heninger).

CONIFER APHIDS (*Cinara* spp.) - NEVADA - First-stage nymphs of *Cinara* sp. emerging on spruce in Yerington, Lyon County; infestations light. (Bechtel, Cooney). *C. tujafilina* heavy on arborvitae nursery stock brought in from out-of-State. (Hilbig).

FLORIDA RED SCALE (*Chrysomphalus aonidum*) - FLORIDA - Severe on leaves of 200 sago palm (*Cycas revoluta*) plants in nursery at Miami, Dade County. (Meyer, Mar. 21).

AN ARMORED SCALE (Diaspis boisduvalii) - CALIFORNIA - Heavy on chamaerops nursery stock in Saratoga, Santa Clara County. (Cal. Coop. Rpt.).

A MEALYBUG (Rhizoecus pritchardi) - PENNSYLVANIA - Heavy on 300 potted St. Paulia plants in Schuylkill County. Det. by R. J. Snetsinger. (Gesell).

MEALYBUGS - CALIFORNIA - Trionymus diminutus eggs, nymphs and adults heavy on New Zealand flax nursery stock in San Jose, Santa Clara County. Pseudococcus microcirculus heavy on cattleya orchids in orchid garden in Larkspur, Marin County. (Cal. Coop. Rpt.).

RASPBERRY SAWFLY (Monophadnoides geniculatus) - CALIFORNIA - Larvae medium on wild blackberry plants in Pacific Palisades, Los Angeles County. (Cal. Coop. Rpt.).

SOUTHERN RED MITE (Oligonychus ilicis) - FLORIDA - This and Brevipalpus phoenicis severe on leaves of 204 Viburnum odoratissimum plants in inspected nursery at Ruskin, Hillsborough County. (Hale).

A SPIDER MITE (Eotetranychus libocedri) - CALIFORNIA - Eggs, nymphs and adults heavy on twisted juniper tree nursery stock in Santa Paula, Ventura County. (Cal. Coop. Rpt.).

AN ERIOPHYID MITE (Eriophyes buceras) - FLORIDA - Damaged leaves of black olive (Bucida buceras) in Miami area, Dade County. (Dillon, Mar. 8).

A SNAIL (Rumina decollata) - CALIFORNIA - Heavy in lawns, shrubs and ground areas locally in Bakersfield, Kern County. This is a new county record. (Cal. Coop. Rpt.).

FOREST AND SHADE TREES

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - OKLAHOMA - Overwintering generation emerging from pines in Payne County. (Okla. Coop. Sur.). GEORGIA - First-generation larvae feeding on pines in Clarke County. (Coleman).

SPRUCE NEEDLE MINER (Taniva albolineana) - NEVADA - Surveys negative in Churchill, Lyon and Storey Counties. (Bechtel, Cooney).

AN APHID (Essigella californica) - CALIFORNIA - Adults locally heavy on pine trees in Ojai, Ventura County. (Cal. Coop. Rpt.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - MARYLAND - Heavy on several large white pines at Laurel, Prince Georges County. (U. Md., Ent. Dept.). NEVADA - Heavy on older spruce trees in Yerington, Lyon County. (Bechtel, Cooney).

SPRING CANKERWORM (Paleacrita vernata) - MINNESOTA - Moths, probably this species, observed flying week of March 21 in Minneapolis. (Minn. Ins. Rpt.).

A LEAF-MINING WEEVIL (Odontopus calceatus) - TENNESSEE - Ground trash surveys in Union County indicate adult numbers vary 28,000 to 400,000 per acre. (Stanley).

EUROPEAN FRUIT LECANIUM (Lecanium corni) - PENNSYLVANIA - Overwintering crawlers heavy on last year's growth on oaks and sassafras in Pike, Monroe, Northampton and Wayne Counties. Det. by G. Sleesman. (Jeffery, Mar. 23).

A PIT SCALE (Asterolecanium minus) - PENNSYLVANIA - Damaging red, white and chestnut oaks at scattered locations in Pike County. Damage heavy on white and chestnut oaks. Det. by G. Sleesman. (Jeffery, Mar. 23).

AN ERIOPHYID MITE (Aceria mackiei) - CALIFORNIA - Medium on oak trees in Contra Costa County. (Roberts).

MAN AND ANIMALS

MOSQUITOES - FLORIDA - Light trap collections at 43 locations indicate *Aedes taeniorhynchus* most abundant in southwest at Everglades City and Naples, Collier County, and at Ft. Myers Beach, Lee County. Highest count March 15 was 720 females at Everglades City. (Fla. State Board Health). Most temporary woodland pools dried up at Gainesville; one nearly dry remnant showed *Culex restuans* larvae and pupae most abundant; several *Culex salinarius* larvae taken. (Mead). ALABAMA - Larvae very noticeable in water cans and old automobile tires in central section. (McQueen). LOUISIANA - Larval collections by Jefferson Parish Department of Mosquito Control for period ending March 25 contained *Culex salinarius* and *Culiseta inornata*. *Culex salinarius* increased in light trap collections. (Stokes). OKLAHOMA - *Culiseta inornata* fourth-stage larvae present in permanent pools in Stillwater area, Payne County. (Okla. Coop. Sur.). NEVADA - *Culex tarsalis* adults active during evenings in southern Washoe County due to unseasonably warm weather. (Coop. Rpt.). MINNESOTA - First larvae found March 9. Larvae now in first and Control District. Previous earliest record March 9. Larvae now in first and early second stages. Specimen brought into laboratory to accelerate development determined as *Aedes excrucians*. General reduction in larval populations occurred following 14-inch snowfall March 23. In some breeding sites, 25 percent of larvae survived even though sites completely filled with snow. (Minn. Ins. Rpt.).

A BITING MIDGE (*Culicoides niger*) - FLORIDA - Caused considerable annoyance to residents in surburban area of Gainesville, Alachua County. Det. by F. S. Blanton. Several persons forced inside homes during evening. Several dozen noted around single individual. Flies had tendency to get in hair and bit scalp and back of neck. (Mead).

HORN FLY (*Haematobia irritans*) - OKLAHOMA - Moderate on cattle in Seminole County. First report of year. (Okla. Coop. Sur.). MISSISSIPPI - Increasing throughout State. Averaged 10 per animal on 27 head of cattle in Jefferson Davis County; increase from 3 per animal previous week. Average 9 per animal on 16 head of cattle in Grenada County; averaged 11 per animal on 15 head in Webster County. (Dinkins et al.).

FACE FLY (*Musca autumnalis*) - IDAHO - Hibernating adults observed emerging during most of winter in home at St. Maries, Benewah County. Benewah new county record. This second record for State. (Ducommun).

COMMON CATTLE GRUB (*Hypoderma lineatum*) - OKLAHOMA - First adults of season moderate on cows in Seminole County. (Okla. Coop. Sur.).

CATTLE LICE - OKLAHOMA - *Bovicola bovis*, *Linognathus vituli*, *Haematopinus eurysternus* and *Solenopotes capillatus* moderate to heavy on cattle in Garvin and Cotton Counties. (Okla. Coop. Sur.). MISSISSIPPI - Heavy on 6 of 16 animals observed in Jefferson Davis County. (Dinkins et al.). ALABAMA - *B. bovis* and some blood sucking species seriously affecting about 12 percent of cattle in Bibb County. Damage most noticeable where feed short and cattle in poor condition. Lesser numbers reported in Lee County. (Odom, Teague).

HOUSEHOLDS AND STRUCTURES

A CLOTHES MOTH (*Niditinea fuscipunctella*) - NORTH CAROLINA - Adults collected in Wake County home January 5. Det. by D. R. Davis. According to available records, this is first report of this cosmopolitan species in State. (Mount, Mar. 18).

A POWDER-POST BEETLE (*Trogoxylon prostomoides*) - ILLINOIS - Apparently established in oak flooring in home in Rockford, Winnebago County. Det. by T. J. Spilman. First reported in December 1965, but apparently present when present owner purchased home 6 years before. Source of infestation unknown. Treatment applied. (Johnston, USFS). *T. prostomoides* is native of Mexico and Central America; occasionally intercepted in imported woods at Ports of Entry. This is a new State record. (PPC).

CLOVER MITE (*Bryobia praetiosa*) - MARYLAND - Entering homes and annoying occupants in Cecil, Montgomery, and Prince Georges Counties. (U. Md., Ent. Dept). NORTH CAROLINA - Continues to be problem to homeowners in Washington, Guilford, Martin and Wake Counties. (Scott, Wray). TENNESSEE - Troublesome and widespread around homes across State. (Mullett). ARIZONA - Entering homes in Yuma, causing problem to homeowners throughout city. (Ariz. Coop. Sur.). CALIFORNIA - Heavy migration of adults infesting residence in Fremont, Alameda County. (Cal. Coop. Rpt.). NEVADA - Large numbers continue to enter homes and other buildings in Reno-Sparks area, Washoe County. (Arnett). IDAHO - Entered several households in Moscow area, Latah County. (Castellaw).

BENEFICIAL INSECTS

LADY BEETLES - OKLAHOMA - *Hippodamia convergens* most common aphid predator in wheat in western part of State. Present in most fields. Common in alfalfa in southwest. (Okla. Coop. Sur.).

DAMSEL BUGS (*Nabis* spp.) - ARKANSAS - Numbers lower than 2-3 weeks ago, probably due to cold weather. Increase expected. (Boyer).

AN ANTHOCORID BUG (*Orius insidiosus*) - ARKANSAS - First specimen of season taken April 1 in Washington County alfalfa. (Boyer).

A BRACONID WASP (*Aphidius* sp.) - WASHINGTON - Apparently parasitized overwintering *Acyrthosiphon pisum* (pea aphid); 1-10 mummified aphids per square foot on alfalfa foliage in Pasco area near Wallula Junction, Benton County. (Halfhill).

General Beneficial Insects: VIRGINIA - Predators less common than expected in alfalfa, probably due to cold weather. However, some LADY BEETLES and *Nabis* sp. observed. (Isakson). MISSISSIPPI - Populations increasing as temperature continues to rise; 5 *Hippodamia convergens*, 19 *Nabis* spp., 1 *Scymnus* sp., 1 *Geocoris* sp., 1 unidentified lady beetle larva and 25 parasitic Hymenoptera taken in 50 sweeps in Oktibbeha County alfalfa. (Dinkins et al.). MISSOURI - Very low numbers present in small grains and alfalfa in the east central and southeastern districts. Species present were GOLDEN-EYE LACEWING (*Chrysopa oculata*), CONVERGENT LADY BEETLE (*Hippodamia convergens*) LADY BEETLE (*Ceratomegilla maculata*), and a damsel bug. (Houser).

FEDERAL-STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (*Oulema melanopus*) - MICHIGAN - Only slight field activity of overwintering adults observed. First seasonal activity noted March 10 in research woodlots near Galien, Berrien County; temperatures in 50's. No flight yet observed. Large-scale movement from overwintering sites not expected before daytime temperatures exceed 50° for sustained period. First eggs expected about one week after adults move from overwintering quarters. Large-scale egg deposition will likely be delayed until early May or at least two weeks after mass movement from overwintering sites. (Gomulinski).

AN ERIOPHYID MITE (*Eriophyes insidiosus*) - CALIFORNIA - This vector of peach mosaic light on flowering peach trees in Tulare, Visalia and Porterville, Tulare County. Disease not known to occur in area. (PPC)

A FRUIT FLY (*Anastrepha suspensa*) - FLORIDA - Few adults reared from fruits of dooryard grapefruit (*Citrus paradisi*) at 3 locations in Miami area; fruits collected February 11 and 14. Some specimens det. by R. H. Foote. (Swanson).

GRASSHOPPERS - OKLAHOMA - Egg surveys in rangeland and cropland areas of Roger Mills, Beckham, Washita and Kiowa Counties showed average of 1 egg pod per square foot at rangeland stops. None found in stops at crop margins. Egg pods examined at a Beckham County stop showed slight development. Light numbers of young nymphs found in alfalfa margins in Kiowa County. (Okla. Coop. Sur.).

LEAFHOPPERS - GEORGIA - Vectors of phony peach disease collected from peach trees in Fort Valley. (Jacklin).

STATUS OF THE SCREW-WORM (*Cochliomyia hominivorax*) IN THE SOUTHWEST

During the period March 27-April 2, one case was reported in the United States in Hidalgo County, TEXAS. The Republic of Mexico reported 73 cases as follows: Sonora 54, Territorio sur de Baja California 5, Chihuahua 6, Nuevo Leon 1, Coahuila 1 and Tamaulipas 6. Sterile screw-worm flies released: Texas 14,586,250, Arizona 1,200,000 and Mexico 86,220,800.

	Positive Cases		Negative Cases		Ratio of Positive Cases to 100 Cases Negative	
Year	Current	Cumulative	Current	Cumulative	Current	Cumulative
Table 1.	Comparison of specimens reported during corresponding week in 1964 and 1965 in Southwestern Eradication Area. (1966 area figures include cases reported from Arizona and/or California; 1965 figures reflect those from the 5-State area).					
1964	5	12	230	931	2.17	1.28
1965	0	4	45	615	0.00	0.65
1966	1	28	63	364	1.58	7.69
Table 2.	Comparison of specimens reported during corresponding week and in a corresponding area in 1965 in the United States-Mexico Barrier Zone.*					
1965	57	572	34	367	167.64	155.85
1966	74	526	86	308	86.04	170.77

Mexico Field Study - No report received for this period.

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* Barrier Zone - Area in which screw-worm eradication operations are being carried out in an effort to prevent establishment of self-sustaining screw-worm populations in the United States. (Anim. Health Div.).

SOME FIRST APPEARANCES OF SEASON

Armyworm larvae in Florida; adults in Arkansas. Clover root curculio in Maryland. Spotted cucumber beetle in Oklahoma. Spotted cutworm in Ohio. Tarnished plant bug in Maryland. Red-banded leaf roller adults in Indiana. Apple aphid in Delaware and Indiana. Nantucket pine tip moth in Oklahoma. Mosquito larvae in Minnesota. Horn fly, common cattle grub adults and grasshopper nymphs in Oklahoma. An anthocorid bug (*Orius insidiosus*) in Arkansas.

INSECT DETECTION

A Seed Midge New to North America

Adults swept and reared from bromegrass seed heads in Lancaster County, Nebraska, in June 1965 identified as Stenodiplosis bromicola Marikovskii and Agafonova by R. J. Gagné. Evidence of midge infestation was found in 10 of 11 samples of smooth bromegrass seeds collected along southern border of Nebraska. Infestation rate was seldom high; highest level of damage 11.4 percent (Lancaster County). This species is widespread and a serious pest of bromegrass seed production in USSR and not previously known to occur in North America. Damage to smooth bromegrass heads has been reported over a wide area in the past: From Lafayette, Indiana, to Mandan, North Dakota, and Stillwater, Oklahoma. Principal damage was to Bromus inermis, but damage to B. anomalus, B. kalmii, B. ciliatus and B. purgans was also observed. (Manglitz, Neiman).

There are only two readily available literature references on this pest. These are abstracts in The Review of Applied Entomology. One is found in Ser. A. 50(10): 542, 1962: "Marikovskii (P. I.) & Agafonova (Z. Ya.). A new species of gall-midge (Diptera, Itonididae), injuring brome grass, and certain features of its bionomics. (In Russian.)--Rev. Ent. URSS 40 pt. 2 pp. 272-274, 1 fig. Leningrad, 1961. Descriptions are given of the adults of both sexes of Stenodiplosis bromicola, sp.n.. which was found in 1956 infesting the inflorescences of grasses of the genus Bromus, including the cultivated B. inermis and B. riparius, near Kursk and in other parts of the Soviet Union. Infestation reached 60 per cent. in B. riparius and 100 per cent. in B. inermis. The Cecidomyiid overwintered as larvae in diapause in cocoons in fallen seeds and flowers in the field and also in storehouses; such larvae remained viable for up to two years. The females laid 80-100 eggs each, in the flowers, usually singly, and the larvae fed on the ovaries. In unfertilised flowers, they pupated without forming a cocoon and the adults emerged soon after, but in fertilised ones their development was retarded and they spun cocoons, in which they overwintered. Adults were first observed in mid-May, full-grown larvae and pupae in early June and overwintering larvae in cocoons about the beginning of July. Mass emergence of first-generation adults occurred on 15th-21st June, and the females oviposited in withering flowers of late-developing plants. The adults of the second and third generations emerged in July and early August, respectively. In the laboratory, males lived for 1-2 and females for 2-3 days. Late varieties were most heavy attacked."

The second reference is also in Rev. Appl. Ent. as follows: Ser. A. 51(2): 74, 1963. Agafonova, Z. Ya. 1962. The development of the midge Stenodiplosis bromicola Mar. and Ag. (Diptera, Itonididae) in relation to pecularities of the biology of brome grasses (Bromus inermis Leyss. and Bromus riparius Rehm.). Rev. Ent. URSS 41(1):22-39, 1962. In Rus., Engl. sum., 16 figs, 37 refs.

Studies are being continued by Manglitz and Neiman on biology and ecology of this insect. Cooperators should be alert for occurrence of S. bromicola in their areas this coming season. (PPC).

CLOUDY-WINGED WHITEFLY (*Dialeurodes citrifolii*) - HAWAII - Medium on citrus in Hilo, Hawaii Island. Det. by L. M. Russell. This is new State record. (Chong, Yoshioka). (p. 286).

A CLOTHES MOTH (*Niditinea fuscipunctella*) - NORTH CAROLINA - Adults collected in Wake County home and determined by D. R. Davis. Apparently first record of this species in State, according to available records. (Mount). (p. 280).

A POWDER-POST BEETLE (*Trogoxylon prostomoides*) - ILLINOIS - Apparently established in oak flooring in home in Rockford, Winnebago County. (Johnston). This is a new State record. (PPC). (p. 280).

ALFALFA WEEVIL (*Hypera postica*) - ARKANSAS - Found for first time in Washington, Clay and Chicot Counties. Has spread across State in 3 years. (Boyer et al.). (p. 274).

LESSER CLOVER LEAF WEEVIL (*Hypera nigrirostris*) - UTAH - Larvae severely damaged red clover in Duchesne County June 18, 1965. This new county record and unusual for State. (Knowlton). (p. 275).

FACE FLY (*Musca autumnalis*) - IDAHO - Adults emerged during most of winter in home in St. Maries, Benewah County. This new county record. (Ducommun). (p. 280).

A SNAIL (*Rumina decollata*) - CALIFORNIA - Reported for first time in Kern County. (Cal. Coop. Rpt.). (p. 279).

CORRECTIONS

CEIR 16(12):231 - Paragraph 4, line 7 - Chrysodeixis chalcites should read *Anomis flava* (Haw. Ins. Rpt.).

LIGHT TRAP COLLECTIONS

BL = blacklight
I = incandescent
MV = mercury vapor
O = other

	Temperature °F.	Precipitation (inches)	Type of trap	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chorizagrotis auxiliaris (army cutworm)	Estigmene acrea (salt-marsh caterpillar)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	H. zea (bollworm, corn earworm, tomato fruitworm)	Loxostege commixtalis (alfalfa webworm)	Loxostege similalis (garden webworm)	Loxostege sticticalis (beet webworm)	Manduca quinquemaculata (tomato hornworm)	Manduca sexta (tobacco hornworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Spodoptera frugiperda (fall armyworm)	Trichoplusia ni (cabbage looper)	Crops
FLORIDA																								
Gainesville 3/29-31			BL	1					19															
Gainesville 3/31			BL						3															
GEORGIA																								
Tifton 3/23-30	37-67	0	BL								1													
MISSISSIPPI																								
Stoneville 3/24-30	26-80	0.08	BL	2														26		32				
Rolling Fork 3/24-30			BL															4		5				
Tunica 3/24-30			BL	7														21		11				
SOUTH CAROLINA																								
Charleston 3/25-4/3	34-80	0.40	BL	2					2											4				
TEXAS																								
Brownsville 3/26-4/4	51-83	0.07	2BL	25					105		56							61	8	128			4	
Waco 3/23-4/1			BL	2			1		2		2							12	1	14				

Weather continued from page 272.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent od Documents, Washington, D. C. 20250. Price $5.00 a year.

WEATHER OF THE WEEK ENDING APRIL 4

HIGHLIGHTS: (1) Sunny, mild in West; cool, scattered rains East. (2) Severe tornadoes, Florida. (3) Forest fires Southeast, duststorms in Plains, floods Minnesota area.

TEMPERATURE: Low pressure aloft over the Great Lakes and high pressure along the Pacific coast produced sunny, warm weather in the West, but variable cloudiness, scattered showers, and cool weather in the East. Unseasonal warmth occurred from the Pacific Ocean to the Mississippi River. Weekly temperatures over the northern and central Great Plains averaged 10° to 20° warmer than the previous week and 10° to 14° above normal. Persistent high pressure over the northern Rockies circulated clear cool air over the Eastern States where temperatures were cooler than a week earlier. Some eastern areas averaged 3° to 6° cooler than normal. Strengthening of northerly winds after Thursday caused duststorms in the western Great Plains.

PRECIPITATION: Much of the Nation received no important precipitation during the past week. Light snow fell late in the week in the Rocky Mountains. Frequent light sprinkles and snow flurries fell from the northern Rocky Mountains to New England but the weekly totals were of little consequence. Parts of the southern Great Plains have had no soaking rains in more than 2 months. Local dry areas from Oklahoma to the Carolinas caused a serious fire hazard. Numerous fires burned thousands of acres of range and timber. Showers late in the week decreased the fire hazard in portions of the Southeast.

TORNADOES: Severe tornadoes crossed the central Florida Peninsula on Monday, April 4 causing very heavy damage and many personal injuries. Early reports indicate 9 or more fatalities; the greatest 1-day tornado toll on record for the State. There were more tornado deaths in 1 day than in any entire year in previous Florida history. (Summary supplied by Environmental Data Service, ESSA).

HAWAII INSECT REPORT

Cereal and Forage Insects - A GRASSHOPPER (Schistocerca vaga) - One adult male and fourteen second to fifth-stage nymphs caught on Desmanthus virgatus (slender mimosa) and Chloris inflata (swollen finger grass) in Nanakuli, Oahu. Further increase and spread anticipated. (Haw. Ins. Rpt.).

Fruit Insects - CHINESE ROSE BEETLE (Adoretus sinicus) caused heavy foliar damage to Euphoria longan in Hilo, Hawaii Island. (Yoshioka).

Truck Crop Insects - SOUTHERN GREEN STINK BUG (Nezara viridula) heavy on wild hosts, especially Crotalaria sp. (rattlebox) in Waimanalo, Oahu. Mostly second to fifth-stage nymphs. (Mitchell). One adult of a STINK BUG (Thyanta accerra) caught in Waianae, Oahu, on Waltheria americana (hialoa), a lowland weed, by M. Hironaka. Subsequently, one adult and a 3rd instar nymph were caught on Chloris inflata (swollen finger grass) in Nanakuli, Oahu, by R. Suzukawa. This most westerly spread since first discovery on snap beans and eggplant in Ewa, Oahu, in October 1965. (Haw. Ins. Rpt.). DIAMONDBACK MOTH (Plutella maculipennis) larvae heavy on Chinese cabbage in Waianae, Oahu. (Mitchell). BLACK CUTWORM (Agrotis ipsilon) medium on Chinese cabbage in Kipapa, Oahu, 3 miles north of Waipahu. (Yamamoto). SWEETPOTATO LEAF MINER (Bedellia orchilella) larvae medium on 0.25 acre of sweetpotato in Kalaheo, Kauai; adults noticeable. (Fujimoto). IMPORTED CABBAGEWORM (Pieris rapae) causing moderate damage to broccoli in Kahului, Maui; moderate damage to head cabbage in 5 acres at Kula, Maui, 3,000 feet elevation. (Miyahira, Takishita). GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) heavy on tomato, potato and snap beans in Kahului, Maui. (Miyahira). HAWAIIAN BEET WEBWORM (Hymenia recurvalis) larvae and adults heavy on chard in Hilo, Hawaii Island. (Yoshioka). BROAD MITE (Hemitarsonemus latus) heavy and caused severe damage to chard in Hilo; plants considerably set back. (Yoshioka).

Cotton Insects - PINK BOLLWORM (Pectinophora gossypiella) larvae and adults heavy on cotton on Sand Island, Oahu; 18 larvae and 7 pupae noted in 15 bolls. Moths readily seen hiding in bolls and calyces. (Gaddis).

Forest, Ornamental and Shade Tree Insects - THREE-LINED POTATO BEETLE (Lema trilineata) adults heavy on Solandra guttata (cup-of-gold) in Makawao, Maui. (Hardy). APHIDS - Neophyllaphis araucariae infestation moderate to heavy on Araucaria heterophylla (Norfolk Island pine) in Kapoho, Hawaii Island, heaviest on young trees; Pentalonia nigronervosa medium on Alpinia purpurata (red ginger) in Hilo, Hawaii Island. (Yoshioka).

Household and Structural Insects - FORMOSAN SUBTERRANEAN TERMITE (Coptotermes formosanus) swarms observed for first time this year in Manoa area of Honolulu, Oahu, March 14. (Mitchell).

Beneficial Insects - A TACHINA FLY (Trichopoda pennipes) - Eggs present on 63.9, 90 and 82 percent of southern green stink bug adults collected in Palama area of Honolulu, Oahu and in Hilo and Puako, Hawaii Island, respectively. (Mitchell, Yoshioka). A HELIODINID MOTH (Schreckensteinia festaliella) - Moderate to heavy larval population feeding on terminals and foliage of blackberry (a weed pest) in Olinda, Maui; light on blackberry in Waiakamoi, Maui, 3 miles northeast of Olinda. (Miyahira).

Miscellaneous Insects - AN APHID (Aphis oenotherae) heavy on Oenothera stricta (evening primrose) along Saddle Road in Mauna Loa Game and Forest Reserve, Hawaii Island, at 6,300 feet. First found in State on evening primrose on Hawaii Island in 1963 by B. Hu and subsequently on Maui in 1964 by J. Beardsley. (Kami).

New State of Hawaii Insect Record - CLOUDY-WINGED WHITEFLY (Dialeurodes citrifolii) reported medium on citrus in Hilo, Hawaii Island, by E. Yoshioka. Det. by L. M. Russell. (Chong)

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1965

(continued from page 262)

INSECTS AFFECTING MAN AND ANIMALS

Highlights:

Although MOSQUITOES were annoying in Florida, the number of cases of mosquito-borne diseases was considerably reduced. A large number of equine encephalitis cases among horses did develop in North Carolina. The prolonged drought on the Eastern Seaboard undoubtedly kept mosquito populations lower than normal. The northern Great Plains, which had abundant rainfall, also had abundant mosquito populations. The threat of encephalitis caused considerable concern in States with high mosquito populations. Controls are essential for FACE FLY in all States reporting this pest for several years. Face fly has spread to 20 additional counties including 3 new States. HOUSE FLY, HORN FLY, STABLE FLY and CATTLE GRUBS also caused losses to stock throughout the Nation. The number of SCREWWORM cases found in the Southwest are believed to have come from long-distance migrations and not from native populations. CATTLE LICE were serious on untreated cattle throughout the Country.

Various species of MOSQUITOES caused major annoyance in ALABAMA. Aedes sollicitans and other species were constant pests during summer months from the coastal area to the Tennessee Valley. Although mosquitoes were present throughout Alabama, most concern developed in coastal areas of Mobile and Baldwin Counties, extending generally along rivers and other streams where large bodies of water were impounded. Through November, 45 cases of equine encephalitis were reported in FLORIDA; 111 cases were reported in the same period in 1964. Only 5 cases of equine piroplasmosis and 67 cases of anaplasmosis were reported in that period. The Encephalitis Research Center of the Florida State Board of Health reported that Dr. W. McD. Hammon of the University of Pittsburgh Laboratory has determined that a new member of the California group of arboviruses is present in Florida. Incomplete data indicate that 21 positive mosquito pools for California group arboviruses, 15 for Tensaw, 9 for eastern equine encephalitis (EEE) and 3 for Hart Park-like agent have been identified. Viruses belonging to the California complex are now the most commonly found type of arbovirus in Florida mosquitoes and this is rapidly becoming a new problem in medical entomology in the State. Intensive search failed to find evidence of virologic or serologic activity of St. Louis encephalitis virus in the Tampa Bay area since the epidemic of 1962. Arboviral agents of the California complex have been recovered in that area in 1963, 1964 and part of 1965 from Aedes infirmatus and A. atlanticus. Despite ample evidence of viruses in mosquitoes in the area, there is minimal evidence by antigen tests that infection is occurring in either man or other animals. Western equine encephalitis (WEE) was isolated from a horse brain. From Culiseta melanura, 8 EEE and 4 WEE isolates were made; 1 recovery each of EEE was made from pools of Culex pipiens quinquefasciatus, C. nigripalpus and Mansonia perturbans. In February, EEE was recovered from C. salinarius in Florida.

Aedes sollicitans populations were slightly higher along the coast of NORTH CAROLINA than in 1964. This species was very light during the second week of August and fairly abundant in late October. Culiseta melanura was unusually abundant on the Coastal Plain. C. melanura was believed to have been a major factor in the large number of equine encephalitis cases among horses in 1965. Aedes aegypti larvae and adults were abundant around Kernersville, North Carolina, in late September. Unspecified mosquitoes were annoying occasionally in VIRGINIA. In general, complaints of mosquito annoyance in MARYLAND were considerably below normal. High tides on the Eastern Shore failed to produce any widespread abundance of Aedes spp. although severe, localized annoyance was experienced. Culex spp. were a problem in several residential areas in southern sections of Maryland. Two major peaks of abundance were noted for A. vexans in New Castle County, DELAWARE, the end of July and the second week in June. *A. sollicitans* was not particularly abundant in Kent and Sussex Counties, but small numbers occurred throughout the season. Small numbers of *Culex* spp. occurred throughout Delaware from July to September. *Aedes* spp. and *Culex* spp. were most abundant in the spring locally in RHODE ISLAND. Spring flood-pool mosquitoes were particularly annoying in NEW HAMPSHIRE in spite of drought conditions. *Aedes* spp. were the predominant woods-pool mosquitoes in MAINE. Numbers increased during the first week in June in Orono and became extremely heavy.

The most common mosquito species in OHIO during 1965 were *Aedes vexans*, *Culex pipiens*, *C. restuans*, *A. stimulans*, *C. pipiens quinquefasciatus* and *Anopheles punctipennis*. An extremely large population of *Aedes* spp. persisted over much of MICHIGAN from mid-May until mid-June. Numbers were considerably greater than in recent years. A late brood of adults caused annoyance in October in southern Michigan counties. Various species were very abundant and troublesome in most areas of ILLINOIS. Mosquitoes had favorable weather conditions in WISCONSIN early and late in the season when there were numerous pools of shallow water in fields and woodlands. Mosquitoes were most numerous in late May and early June when they plagued cattle as well as humans and again after heavy September rains.

Mosquito development was approximately 2 weeks later than in 1964 in MINNESOTA. Warm weather in early May speeded larval development and by May 15 most single-brooded *Aedes* had emerged in the Minneapolis-St. Paul area. *A. vexans* and *A. sticticus* were common in larval collections by May 7. Heavy rains occurring almost weekly brought on successive broods of *A. vexans*; the first heavy emergence of this species occurred about May 20 with a second on May 28. *A. sticticus*, a floodwater species, was abundant in May and early June, especially in northern Anoka and Isanti Counties. *A. vexans* was generally predominant in trap and biting collections for the remainder of the season. *Culex tarsalis* reached a peak the week of July 17. Since this species is a known vector of western equine and St. Louis encephalitis, there was concern of possible increases in these diseases; however, no increase was noted. The peak for *Mansonia perturbans* occurred by the end of July. Of the 100,000 plus female mosquitoes taken from 16 light traps in the Metropolitan Mosquito Control District the week of July 18, over 80,000 were *A. vexans*. This catch exceeded the total number of this species taken during the entire 1964 season. Populations declined in August but several single-brooded species, such as *A. stimulans*, *A. excrucians*, *A. fitchii* and *A. sticticus*, were common in bite collections to late August. *Anopheles walkeri* appeared in early August trap collections and *Aedes triseriatus*, a tree-hole breeder, appeared August 13. The total catch of the Metropolitan Mosquito Control District was 243,000 females of which 194,000 were *Aedes vexans*; rainfall in the district for May through September was almost 28 inches, equal to the average rainfall for an entire year. Large numbers of mosquitoes appeared in most areas of NORTH DAKOTA. *Aedes vexans* and *A. dorsalis* were the dominant species in the east and *A. nigromaculis* was dominant in some western areas.

Several species of mosquitoes were reported in various areas of TEXAS. *Culiseta inornata* became active in late February in OKLAHOMA. This mosquito and other species were heavy, especially in the east until late October. Activity continued into early November. *Aedes sollicitans*, *Culex tarsalis*, *Psorophora confinnis* and *P. ciliata* were the most commonly collected species in Oklahoma. Plentiful moisture encouraged higher than normal numbers of mosquitoes in MISSOURI, particularly in many flooded areas caused by the heavy rains. Dominant species in these areas were *A. vexans* and *P. confinnis*; the dominant species in nonflooded areas were members of the *Culex pipiens* complex. Encephalitis was the most important insect-borne disease in KANSAS. There were 42 unconfirmed and 15 confirmed cases in the State. Of the total cases reported, 23 cases occurred in children 15 years old or younger. Most cases were reported in western Kansas. The Arkansas River underwent severe flooding in southwestern Kansas but through the efforts of Federal, State and local officials, mosquito populations were kept at low levels. *Aedes vexans* was predominant locally where heavy rains occurred. Several communities initiated or intensified control efforts primarily because of *A. vexans*, *Psorophora* spp. and *Culex tarsalis*. Heavy numbers of *C. tarsalis* and *A. vexans* were present in eastern NEBRASKA during June. A. trivittatus populations were moderate in eastern river bottoms in late June and early July. High populations of A. dorsalis occurred in northwest and southwest Nebraska in late June and early July. Mosquito populations were larger in WYOMING in 1965 than in the past few years due to above average spring rainfall and flooding of many areas. Only moderate control success was realized in many cities and towns. Mosquitoes were troublesome in many more locations in MONTANA and for a longer period of time. A. vexans, A. dorsalis and A. nigromaculis were in the majority; A. spencerii idahoensis, C. tarsalis and Culiseta inornata were often abundant. An outbreak of western encephalitis threatened the lower Milk River area of Montana, but cold weather in early September evidently halted its spread.

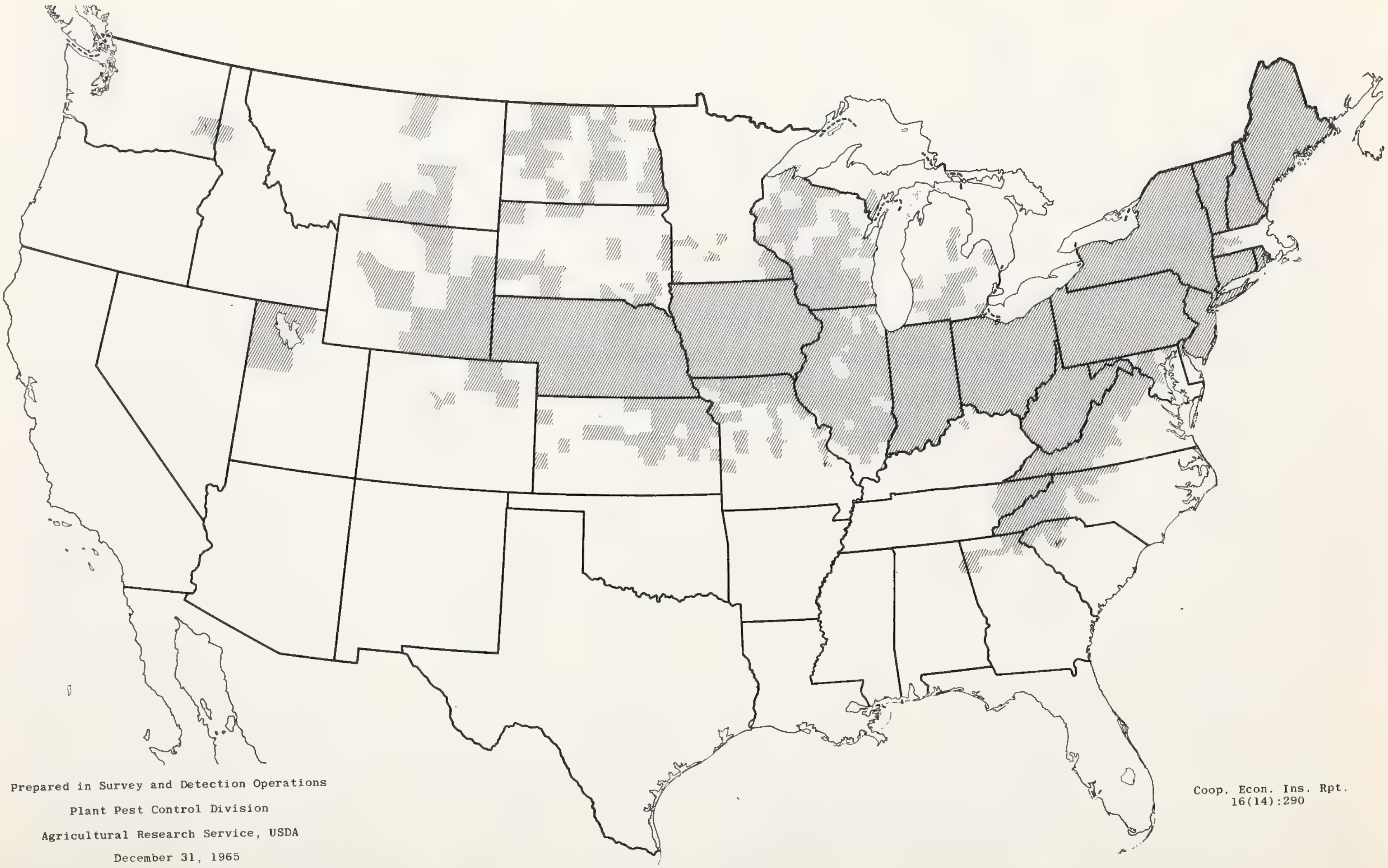
Mosquitoes were very abundant after heavy summer showers in NEW MEXICO. They were a problem in all areas of the northwest. Populations involving several species became quite large after heavy spring rains in ARIZONA and again following heavy rains in August and September; controls were necessary in some populated localities. UTAH had a short but very high population peak over a shorter than normal season of about 6 weeks in Weber County. Most years the season consists of 8-10 weeks of active control. Annoyance and peak populations were about twice normal. Some Aedes spp. were annoying in duck hunting areas but populations dropped after frosts. Annoyance was well above normal in many communities of Davis and Box Elder Counties. A. dorsalis was very abundant in Brigham City area in early September. Mosquito populations were heavy statewide in NEVADA with populations equaling the high 1963 levels. Aedes spp., Anopheles freeborni and Culex tarsalis were prominent and caused the most concern. Mosquito populations in CALIFORNIA were generally low with few occurrences of irritation. Heavy infestations occurred in OREGON at White City and Medford Airport, in Jackson County; the Klamath Basin and particularly in the upper Klamath Lake, Keno and Langell Valley areas. Species involved were Aedes nigromaculis, A. dorsalis, A. vexans, Anopheles freeborni and Culex tarsalis. A summary of the 1965 progress report of Aedes aegypti eradication program in the United States was reported in CEIR 16(3):38-39.

BLACK FLIES were heavy in MAINE in most areas by June 6. These flies were heavy in the spring in NEW HAMPSHIRE and created annoyance for early season visitors. The usual abundance occurred in rural areas of RHODE ISLAND. SOUTHERN BUFFALO GNAT (Cnephia pecuarum) was a minor livestock pest in OHIO. Black flies were generally abundant in river bottoms of NORTH DAKOTA, and were very abundant near Kindred in Cass County.

MIDGES emerged in heavy numbers from a lake in Clackamas County, OREGON, and caused a nuisance in nearby homes. People in papermills along the Columbia River had great difficulties in preventing clouds of midges from entering through window screens and contaminating their products. Midges were a nuisance to people near the newly formed lake at Dardenelle, ARKANSAS, in May. During spring and summer months, midges became troublesome in several areas of NEW JERSEY. They were attracted to lights in central and northern areas. Several flights of BITING MIDGES (Culicoides spp.) occurred from several lake areas in MAINE in early July.

FACE FLY (Musca autumnalis) was recorded for the first time in WASHINGTON, IDAHO, and UTAH during 1965. In Utah, it was a serious pest during late summer in the Cache Valley and parts of Box Elder, Weber and Davis Counties. Specimens in the Utah State University Museum indicate that face fly has been in the State as early as July 1964. Counts were generally lower in NORTH DAKOTA than in 1964. This was a serious problem in SOUTH DAKOTA. Population studies were made on Black Angus cattle in Charles Mix County for both face fly and Haematobia irritans (horn fly) and although the numbers of M. autumnalis were low compared with H. irritans, the pattern of buildup remained similar. Until early July, Black Angus stock had 1-5 M. autumnalis adults per head, with higher numbers on calves and young stock. From mid-July to mid-August, 12-25 adults per head were commonly observed in that study. Some face fly problems occurred in NEBRASKA, but populations were slightly below those of 1964. Populations were low in KANSAS as were other livestock pests. Face fly numbers were slightly higher in MISSOURI than in the previous 3 years, but this pest remains of little economic importance; it was

DISTRIBUTION OF FACE FLY
(*Musca autumnalis*)



Prepared in Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service, USDA
December 31, 1965

Coop. Econ. Ins. Rpt.
16(14):290

a problem around homes and buildings. The first specimen of the season in ILLINOIS was observed on cattle in Pike County April 20. Populations were very light throughout the season; the highest average was 10 flies per face and the highest number per animal was 30. One new county record was reported in Illinois. Face fly became numerous in a few areas of WISCONSIN in August. It reportedly caused a decrease in milk production; pinkeye, reputedly transmitted by Musca autumnalis, was a problem in some herds. This fly was generally at noneconomic levels on livestock in INDIANA. Summer populations were light with a slight buildup during September. Face fly populations on cattle began in late April in OHIO and continued through August. Numbers built up in early July but infestations did not appear to be too severe in 1965. During peak periods, averages of over 15 flies per face were common over Ohio.

Face fly populations were high in all areas of NEW HAMPSHIRE; statewide averages ranged 20-36 per animal. This fly was not so severe in PENNSYLVANIA. During mid-June populations averaged about 4 per animal in the northern area. This fly was unusually abundant in NEW JERSEY where controls were not practiced. Populations on beef and dairy cattle in central counties of MARYLAND were generally light for the second consecutive year. Face fly was the usual problem in the mountains of NORTH CAROLINA. Populations were as high as 25 per animal in Madison and Haywood Counties during early June.

HOUSE FLY (Musca domestica) was a serious pest of swine around breeder pens in ALABAMA. It continued as a major annoyance to man and a major household nuisance during the year. This fly was unusually abundant where controls were not used in NEW JERSEY. A heavy infestation of LITTLE HOUSE FLY (Fannia canicularis) occurred on a poultry farm in western PENNSYLVANIA. Heavy house fly populations developed in suburban areas of Burlington, NEW HAMPSHIRE. Populations were relatively low in MICHIGAN. House fly increased gradually from early May until a high level was reached in early August in WISCONSIN. Later it remained rather constant until cool, September temperatures began to inhibit activity and development. House fly counts were generally lower in NORTH DAKOTA than in 1964. The average number of reports concerning this pest were noted in MISSOURI. It was heavy around livestock feeding pens and a problem in homes and other buildings. Larvae of house fly were present on poultry droppings as early as April 9 in northwest ARKANSAS. Populations were high and continued high until cold weather in December. Activity began in early April in OKLAHOMA but numbers did not become heavy until early June. House fly was heavy in many areas through late October with activity continuing until mid-December. Large populations invaded homes, barns and milking parlors in all areas of WYOMING, particularly in late August, September and October, and it caused much concern to both urban and rural residents. House fly was generally not so prevalent as in past years in CALIFORNIA. A few local outbreaks occurred periodically.

HORN FLY (Haematobia irritans) infestations were normal in CALIFORNIA. Populations were heavy in NEVADA. It reached economic levels on untreated animals in southern areas of NEW MEXICO by mid-May and in northern areas by mid-June. Average populations of 500 per animal were reached in Valencia County by early July. These increased to an average of 1,300 per animal in early August then declined slowly, reaching a level of about 500 per animal in early September. Horn fly was of concern in TEXAS during the season. Populations became active in early April in OKLAHOMA; numbers were moderate to heavy from mid-May to mid-July with highest populations in early June. Numbers declined during late July but increased again in early August. The second peak of activity in Oklahoma occurred in mid-September; then decreased slowly until it disappeared in late November. Horn fly was heavy in early summer in ARKANSAS becoming lighter during August and early September when rains increased and heavy again when rainfall decreased in September. Counts ranged 100-200 per head on untreated cattle in MISSOURI in May and steadily increased to 500-1,000 per head in early July. Horn fly was the most serious pest of livestock in Missouri; numbers were commensurate with those of 1964. This fly was the most important pest of range cattle in KANSAS where large numbers built up by end of summer. Populations were light to moderate in NEBRASKA, about the same as in 1964. Cattle were again annoyed throughout WYOMING by the presence of this fly. Largest populations were found in Laramie, Platte, Goshen, Johnson and Sheridan Counties. Wyoming stockmen are using more backrubbers and sprays each year to control flies.

Horn fly was a serious problem in SOUTH DAKOTA and numbers were at the highest point of several years over most areas of the State. Specific Black Angus herds in Charles Mix County were studied in conjunction with fly problems. From the beginning of the fly season in May to mid-June, the number of H. irritans adults built up to an average of 200 per side of stock. Further increases took place until mid-May on untreated herds, when averages of 300-400 per side were reached. Counts went up to an extreme of 10,000 per side on bulls. Such high numbers led to severe irritation to stock during daylight hours which was evidenced by non-feeding, bunching and fighting among animals. Populations of 200-300 per side of stock continued in South Dakota until late August and early September when numbers dropped to 75-100 per side. Numbers reached 200 or more per cow in southeastern NORTH DAKOTA. Activity increased slowly through May into June in WISCONSIN, creating problems in several areas. Horn fly was first reported by April 28 in Jackson and Monroe Counties, ILLINOIS, when populations ranged 0-100 per animal. A peak of 50-500 per animal was reached in southern Illinois about June 22 with a herd average of 250 per animal. This population declined somewhat, then peaked again the first of September when 100-500 per animal occurred in Johnson County. The peak in northern Illinois apparently occurred about the end of June when the heaviest infested herd had 50-300 adults per animal. Horn fly was generally at noneconomic levels in INDIANA; summer populations were light with a slight buildup occurring in September. Horn fly was common on the backs of cattle in OHIO in May and into June; estimated counts ranged up to 100 or more per back.

Horn fly ranged 75-100 per animal in the Burlington area of NEW HAMPSHIRE, was a definite problem at various times during the summer on dairy and beef cattle in all sections of MARYLAND, and reached 110 per animal on May 22 in GEORGIA. Horn fly caused considerable concern on dairy and beef cattle in ALABAMA but better overall control efforts by cattlemen appeared to have reduced populations during the past 2 years.

STABLE FLY (Stomoxys calcitrans) was unusually abundant in NEW JERSEY when controls were not used. An occasional report of this pest was received in VIRGINIA. Populations were heavier on livestock from July until October in INDIANA than they had been for a number of years. This insect was very annoying around homes and resort areas also. Stable fly was first noted June 9 in Iroquois County, ILLINOIS. Populations apparently peaked July 12-13 when as many as 30 flies were found on one animal. The heaviest infested herds averaged 12-15 per animal in Illinois. Stable fly was one of the worst pests of cattle in WISCONSIN, being prevalent from mid-June to the last of August. Populations were also high in SOUTH DAKOTA compared with the 3 previous summers. In late July and early August, 75-100 flies per side on stock in barnyards was not uncommon.. It was particularly numerous the first week of August near Redfield, South Dakota. Populations of stable fly were slightly larger around corrals and feedlots in WYOMING. Adults ranged 10-40 per animal in more heavily infested areas. The largest numbers were noted in Sheridan, Johnson, Goshen and Platte Counties. Light to moderate populations were noted in NEBRASKA which was about the same as in 1964. Stable fly continues as the worst pest around feedlots in KANSAS. Counts were normal in MISSOURI. Adults ranged 5-25 per animal on cattle in July. Stable fly became active in OKLAHOMA in early June. Moderate to heavy numbers were present on cattle from mid-June to mid-July but decreased during late July and early August. Stable fly again increased during late August and highest counts of the year occurred in mid-September. Activity continued until late October in Oklahoma. Very heavy populations were present in ARIZONA during July and August.

HORSE BOT FLY (Gasterophilus intestinalis) apparently is causing less concern in OKLAHOMA. There were no reports of abnormal activity of Gasterophilus spp. in MISSOURI.

SHEEP KED (Melophagus ovinus) was particularly numerous in many herds at shearing time in the spring in UTAH, but was a minor pest in OHIO.

Self-sustaining SCREW-WORM (Cochliomyia hominivorax) populations were again kept from becoming reestablished within the southwestern area of TEXAS and NEW MEXICO which has been freed of this costly pest. A number of infestations—465 in Texas and 122 in New Mexico—was disclosed in 1965. All of these were believed to have been caused by long-distance migrations from Mexico through the sterile fly barrier zone. The infestations found in the freed area were principally confined to those counties near the Mexican border.

In the latter part of April 1965, ARIZONA and CALIFORNIA entered in the screw-worm eradication program and the sterile fly barrier zone has been extended to the Pacific Ocean. Arizona reported 464 infestations during 1965. California remained relatively free, reporting only 9 infestations.

Over 17.2 billion sterile flies have been released since the southwestern program started in February 1962. Program aircraft have flown more than 11 million miles to release these flies. Nearly 4.8 billion sterile flies were dispersed in 1965. In some areas, the sterile fly barrier zone has been widened and now extends up to 400 miles in some areas of Mexico.

The livestock inspection line along the Arizona-New Mexico State line that was operated to keep infested animals from carrying screw-worm into freed areas has been closed because of the recudtion of screw-worm throughout the Southwest.

SECONDARY SCREW-WORM (Cochliomyia macellaria) was found infesting wounds in cattle near Belle Fourche, SOUTH DAKOTA; this was apparently the only report of this pest.

COMMON CATTLE GRUB (Hypoderma lineatum) and NORTHERN CATTLE GRUB (H. bovis) adults caused serious annoyance to beef cattle in Whitman County, WASHINGTON, during June. H. lineatum was locally heavy in a few CALIFORNIA locations. Populations of both species were about average in NEVADA. Thousands of cattle were treated during the season in UTAH for Hypoderma spp. Cattle grubs were again the most harmful livestock pests in WYOMING. Damage by larvae and running of animals by adults was noted in infested areas. Use of systemic insecticides is becoming more widespread in Wyoming. Numbers of cattle grubs were lower than in 1963 and 1964 in NORTH DAKOTA; averaged 5 per animal with 60 percent of the untreated animals infested. Epidemic populations of both species were present on untreated one and two-year-old cattle in SOUTH DAKOTA in early spring. Adults of H. lineatum became bothersome in a few WISCONSIN areas in late June. Counts of Hypoderma spp. were low on cattle checked in MISSOURI. Moderate numbers of H. lineatum were present from late January to early March in OKLAHOMA. Adults were active from early March to early May. Fall activity began in mid-October in Oklahoma. Some late instars of H. bovis became dark colored in native cattle in MICHIGAN the third week of April. Adults caused considerable annoyance by running cattle on pastures during June. A few incidences of cattle grubs on dairy cattle in east central OHIO occurred in May and April. Emergence began the first week of May in Ohio. Cattle grubs were a major concern on dairy and beef cattle in ALABAMA. Better overall control efforts by cattlemen appear to have reduced populations in the State. Infestations of H. lineatum were generally light in GEORGIA the first half of the year.

TABANID FLIES were slightly more annoying to man and animals in WYOMING than they were in 1964. Largest populations occurred in Albany, Lincoln, Carbon, Johnson and Sheridan Counties. HORSE FLIES were very heavy in some areas of NEVADA. Horse flies became active in mid-April in OKLAHOMA, with moderate to heavy numbers present from early May to early October in many areas. The first species seen were Tabanus mularis and Hybomitra lasiophthalma. The most common species were T. lineola, T. sulcifrons and T. atratus. DEER FLIES (Chrysops spp. and Silvius pollinosus pollinosus) were active in most Oklahoma areas during the same time. Tabanus spp. were normal over most of MISSOURI except in Barton County where counts ranged 2-5 per head. Chrysops spp. were very annoying to people in timbered areas of central and south central Missouri. Deer flies caused extreme annoyance in forested areas of MINNESOTA in early July. Populations appeared to be much higher than in recent years. High nuisance levels were reported from central Minnesota northward. Tabanus spp. and Chrysops spp. became bothersome in a few WISCONSIN areas in late June. Horse flies were relatively scarce throughout the season in ILLINOIS, with first specimens of the season observed June 22 in Hardin and Pulaski Counties. First deer fly activity was noted in early June in Livingston County, MICHIGAN. These pests were especially annoying around resort areas. The usual abundance of deer flies was noted in rural areas of RHODE ISLAND. Chrysops spp. and Tabanus spp. were again very annoying during the summer in MARYLAND, especially in tidewater areas. Horse flies and deer flies were occasionally annoying in VIRGINIA. Diachlorus ferrugatus was a distinct pest in FLORIDA during May. Bites of this fly are very toxic to some people and there were reports of people being hospitalized in the Panama City area.

EYE GNATS were a considerable nuisance in an exclusive residental area near the mountains in the Albuquerque area of NEW MEXICO.

YELLOW JACKETS were unusually numerous and troublesome in NEW HAMPSHIRE. Scattered reports of Polistes spp. and numerous reports of Apis spp., Bombus spp. and Vespula spp. nesting in and near buildings in RHODE ISLAND were noted. BEES AND WASPS were a problem statewide in NEW JERSEY around homes, swimming pools, refreshment stands and picnic areas into early fall months. Many natural areas where bees and wasps normally obtain moisture requirements had dried by midsummer. Yellow jackets and Polistes spp. were especially annoying to many suburbanites in MARYLAND during late summer. CICADA KILLER (Sphecius speciosus) was active in central Maryland and in VIRGINIA. A few reports of GIANT HORNET (Vespa crabro germana) were also noted in Virginia. Yellow jackets and other wasps were not so annoying as in 1964 in ALABAMA. Vespula maculifrons was particularly bothersome from late May to October in forested areas of southern and southeastern OHIO. Giant hornet was also recorded from southern Ohio and for the first time in INDIANA from Floyd, Washington and Clark Counties. WASPS near homes in MINNESOTA and MISSOURI prompted many calls concerning control measures. Vespid wasps entered homes in OKLAHOMA during the fall. Yellow jackets and other wasps were particularly serious all year in CALIFORNIA. Picnic areas, barbecues and vineyards were most affected.

WESTERN BLOODSUCKING CONENOSE (Triatoma protracta) was particularly annoying in CALIFORNIA; more people were bitten and more specimens were submitted than in past years. Triatoma spp. caused the usual concern to residents of Hill County, TEXAS. MASKED HUNTER (Reduvius personatus) bit people in PENNSYLVANIA. BED BUG (Cimex lectularis) infested homes in RHODE ISLAND, PENNSYLVANIA and NEVADA. A BIRD BUG (Hesperocimex coloradensis) was recorded for the first time in Nevada. It was collected at Reno, Washoe County by P. C. Ting in a hospital room on September 27, 1962. This species is usually found in woodpecker holes occupied by Purple Martins.

Populations of CATTLE LICE were apparently low in CALIFORNIA and few infestations were reported. Cattle lice were the most important pests of cattle in NEVADA. They were important also in UTAH in Beaver County during late winter and early spring. Many cattle were dipped or sprayed in the spring in Utah. Although many herds of cattle throughout WYOMING are effectively treated for cattle lice, SHORT-NOSED CATTLE LOUSE (Haematopinus eurysternus) and Solenopotes capillatus remain a serious problem on untreated cattle; populations were about the same as in 1964. By late March, cattle lice, primarily CATTLE BITING LOUSE (Bovicola bovis), were troublesome on untreated herd bulls and older cows in winter pastures of SOUTH DAKOTA. Infestations of B. bovis ranged light to severe in NORTH DAKOTA; severe infestations of H. eurysternus were found on untreated animals in Stark County. LONG-NOSED CATTLE LOUSE (Linognathus vituli) was noted on cattle in Dickson, North Dakota, but numbers were light.

Severe infestations of Haematopinus eurysternus and Bovicola bovis were common in the northern part of NEW MEXICO from January to April. Linognathus vituli caused concern to stockmen in TEXAS. Moderate to heavy populations of cattle lice were present on cattle from mid-January to late June in OKLAHOMA, with counts heaviest in early April. The first fall activity in Oklahoma was noted in early November. Cattle lice were rather light in ARKANSAS. There were no reports of unusual activity in MISSOURI. H. eurysternus was a minor pest of livestock in OHIO. L. vituli was the most commonly collected louse in NORTH CAROLINA particularly in the mountains during a survey of lice on cattle. Solenopotes capillatus and Bovicola bovis were also commonly collected throughout the State but H. eurysternus was collected only once outside the mountains in North Carolina. Lice appeared to be more of a problem in the mountains. S. capillatus and L. vituli infestations on cattle were light in GEORGIA during the first half of the year. Cattle lice were serious problems during the winter months in ALABAMA.

HOG LOUSE (Haematopinus suis) was the most serious pest of swine in ALABAMA, but was minor in OHIO. Populations were moderate to heavy on hogs in many areas of OKLAHOMA from January to mid-May; fall activity began in mid-November. An unusually heavy infestation occurred in Lyon County, NEVADA.

EUROPEAN CHICKEN FLEA (Ceratophyllus gallinae) was very common in litter in commercial poultry farms in Foster, RHODE ISLAND. FLEAS (Ctenocephalides spp.) infested a large numberof homes in Rhode Island in late summer. These were annoying to cats, dogs and humans in MARYLAND and VIRGINIA. CAT FLEA (C. felis) was especially troublesome in NEW JERSEY homes during the spring and fall months. Ctenocephalides spp. were widespread and annoying throughout ALABAMA; populations reached "alarming" proportions in basements, inside homes and on a few lawns. DOG FLEA (C. canis) and C. felis were moderate to heavy on pets in OKLAHOMA. Flea populations were apparently lower than in past years in MISSOURI. C. felis adults infested home basements in Clark County, NEVADA. Many local infestations of C. felis and C. canis were reported in CALIFORNIA.

TICK populations were higher than usual in CALIFORNIA. PACIFIC COAST TICK (Dermacentor occidentalis) caused tick paralysis in local areas, AMERICAN DOG TICK (D. variabilis) caused paralysis of dogs in Amador County and WINTER TICK (D. albipictus) was locally heavy in a few California locations. Dermacentor spp. were troublesome in northwestern counties of NEVADA in March and April. LONE STAR TICK (Amblyomma americanum) caused concern on TEXAS livestock. A. americanum became active in OKLAHOMA in mid-January; numbers were light until late March. Moderate to heavy numbers were present on cattle in the eastern area from late March to late September. D. albipictus was light through January; fall activity began in mid-October. BLACK-LEGGED TICK (Ixodes scapularis) was present in Oklahoma from mid-March to late October. D. variabilis caused considerable concern to pet owners in Oklahoma also. A. americanum continued heavy in ARKANSAS being a nuisance to people in timbered areas as early as late March in northern areas and earlier in southern parts. A. americanum numbers were lower in MISSOURI than in both 1963 and 1964; infestations were sporadic. No A. americanum was found in Boone County which is generally considered the northern limit of distribution in Missouri. Populations of D. variabilis were also below those of 1963 and 1964 in Missouri; there were some heavy infestations, however. High D. variabilis populations were present in early June in the Republican River Valley of NEBRASKA and an increase over populations of 1964 was indicated.

Dermacentor variabilis was abundant in NORTH DAKOTA and caused considerable concern during the season. This tick was very numerous and active in MINNESOTA. It was reported the first week of May and it continued active through June and well into July. Cool weather and high moisture levels apparently were responsible for extending the "tick season" beyond the usual limits. D. variabilis was a nuisance in larger tracts of grass and woods in WISCONSIN. This tick was first reported May 9 in Iowa County. It became gradually more noticeable in more northerly locations as the season advanced, appearing in the extreme north about the third week of May. Relatively high populations occurred in Wisconsin, causing considerable annoyance to both man and small animals. This tick was heavy in many counties in Upper MICHIGAN. First collections were made in late April.

Specimens were taken in mid-July in Monroe and Berrien Counties, with 2 cases of Rocky Mountain spotted fever reported at that time at Niles, Berrien County, Michigan. D. variabilis was a problem on dogs and where dogs brought specimens into homes in OHIO. This tick was active from early May through late June in the southern half of that State. It was collected from a number of dogs in PENNSYLVANIA. Average abundance was recorded in RHODE ISLAND. The heaviest infestations were in sections near Narragansett Bay and on islands in the bay. American dog tick was abundant in DELAWARE during late April and early May in New Castle County. It was prevalent in numerous wooded areas in southern MARYLAND during spring and summer, and was occasionally reported in VIRGINIA. TICKS were of considerable concern on cattle in western ALABAMA and on dogs and in homes throughout the State.

Occasional reports of BROWN DOG TICK (Rhipicephalus sanguineus) infestations in VIRGINIA were noted. Reports of this species in DELAWARE were very numerous, especially in New Castle County. It was a pest in homes in PENNSYLVANIA and NEW JERSEY. R. sanguineus was occasionally a pest in homes in RHODE ISLAND. It was about as troublesome as usual in NEW HAMPSHIRE. Few reports of this species on dogs and in homes were noted in MISSOURI. This pest caused considerable concern throughout OKLAHOMA on pets and was numerous in Clark County, NEVADA. It infested yards, homes and kennels commonly in CALIFORNIA.

EAR TICK (Otobius megnini) was locally severe in a few herds of cattle in CALIFORNIA. Moderate numbers were noted on cattle in Beaver County, OKLAHOMA, in mid-July. Ear tick caused concern to TEXAS livestock.

House infestations of CHICKEN MITE (Dermanyssus gallinae) were noted in Pawtucket and Providence, RHODE ISLAND, in late June and in Warwick in July. An incidence of this mite on a man in PENNSYLVANIA caused concern. NORTHERN FOWL MITE (Ornithonyssus sylviarum) continued moderate to heavy in ARKANSAS and was about normal in CALIFORNIA.

CHIGGERS were general and fairly abundant in PENNSYLVANIA. Eutrombicula alfreddugesi was present in lawns and in recreational areas of ALABAMA. A buildup of Trombicula spp. occurred in late June and early July in OHIO. The first reports of Eutrombicula spp. activity occurred in central MISSOURI June 1. As usual, chiggers were quite troublesome to campers, vacationers, fishermen and others during June and July in Missouri. In OKLAHOMA, Eutrombicula spp. apparently caused less concern.

A BROWN SPIDER (Loxosceles reclusa) was reported in Jefferson and Webster Parishes, LOUISIANA. It was observed in several north central and west central counties of TEXAS. The number of bites inflicted by this spider apparently increased in MISSOURI during August and September. This spider was collected in homes in Monroe and Randolph Counties, ILLINOIS, the latter being a new county record. Unusally large numbers of BLACK WIDOW SPIDER (Latrodectus mactans) invaded buildings in several northwestern counties of NEVADA in September and October. This spider was more prevalent in CALIFORNIA.

Blacklight Trap Standards for General Insect Surveys

Recommended by the Entomological Society of America

In recent years insect traps utilizing blacklight lamps as attractants have become valuable tools to entomologists and others as aids in determining the time of appearance and seasonal abundance of important insect pest species.

At present in the United States there are several different kinds of blacklight traps employed in general insect pest surveys. The Committee on Insect Surveys and Losses, Eastern Branch, ESA, and others, have felt a need for workers to use one basic kind of trap instead of traps of several different designs. It is the opinion of the Committee that a standardized blacklight trap would help considerably in making catches from the same area, or even different areas, more comparable. As a result of this position on the need for trap standardization the Committee, during 1964, embarked on a project aimed at the recommendation of standards for blacklight traps. The Entomological Society of America Committee on Insect Surveys endorsed the study and recommended that the standards be published.

A questionnaire was developed to obtain needed information on the types of traps and trap components in general use and to solicit opinions in regard to erecting trap standards. This questionnaire was sent to over 50 state and USDA workers known to be actively engaged or knowledgeable in insect light-trapping research or service programs. Included among those receiving questionnaires were survey and extension entomologists, agricultural engineers and Plant Pest Control people.

A total of 53 forms were sent out and 36 of these were returned to the Committee, of which 21 indicated that general insect survey blacklight traps should be standardized. Thirteen individuals recommended as a standard either a particular kind of trap or trap components.

A study of the returned questionnaires indicated that a definite majority used or recommended as a standard a light trap equipped with one linear 15-watt blacklight lamp. Concerning trap components other than lamps, a majority reported, or recommended, the use of an omnidirectional trap with baffles, no fan and a collection funnel opening (top) diameter of from 10-18 inches. No majorities were demonstrated favoring or emphasizing

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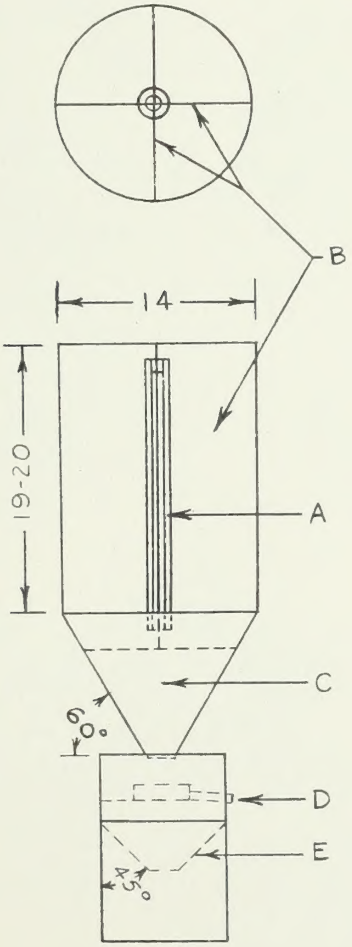

Standards:

1. Attractant—one F15T8/BL lamp (15-watt black light) mounted vertically. See A.
2. Position of lamp—bottom even with rim of funnel, lower lampholder below rim.
3. Four baffles (two crossed), dimensions: total width 14″; total height above funnel rim 19″–20″; clearance between inner edge and lamp ¼″–½″. See B.
4. Funnel—slope 60°; top diameter 14″ (approx. ¾ length of lamp); bottom opening diameter 2″; lower end inserted into top of collection container ¼″ to form drip rim for water. See C.
5. No large canopy over top of baffles (such a cover reduces catches of some species).

Additional Recommendations:

1. Wiring system showing Underwriters' Laboratories (UL) seal of approval.
2. Electrical components mounted either on side or top, but if on top the area of obstruction to light not to exceed a 5″ square (25 sq. in.).
3. Use of a side-emptying drain placed in cover of collection can to leave collection container unobstructed. See D. Pan diameter at least 4″, depth 1″, drain opening ½″ × 1″ minimum.
4. Collection container designed for use of less harzardous killing agents, such as ethyl acetate (as compared to calcium cyanide) through use of insert funnel with sealing gasket, 45° slope and 2″ opening. See E.
5. Material—26 gauge galvanized steel minimum.

Reprinted from Ent. Soc. Amer. Bul. 12(1):31-32, 1966.

one size of collection container or one killing agent over others used. A few who listed ethyl acetate were enthusiastic about its use over cyanide. Several individuals thought that the position and location of the trap in the surveyed area is as important as the type of trap used.

Along with a review of the questionnaire, the Committee reviewed the literature on insect light traps and gave particular attention to the results of recent investigations. This was done for the purpose of assisting in the selection of a trap or trap components which would be favorable from the standpoints of durability, trapping efficiency and cost. On the basis of these reviews the Committee proposes that certain trap design standards be used in general insect survey work. The design should include: one 15-watt blacklight lamp; omnidirectional design; baffles; no fan; 10-18 inch funnel opening (top diameter); and a collection container capacity over one quart. For specifications of the standards as well as pertinent additional recommendations see the illustration.

It should be emphasized that the Committee's chief concern is with blacklight traps used in general insect survey programs employed to determine the time of occurrence and abundance of established insect pest species such as the corn earworm, fall armyworm, European corn borer, cabbage looper, etc. The Committee fully recognizes the separate need of specially designed survey traps for the purpose of detection or research.

Additional comments, criticisms or suggestions would be welcomed concerning these standards or the additional recommendations.

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